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Inventor(s): ;

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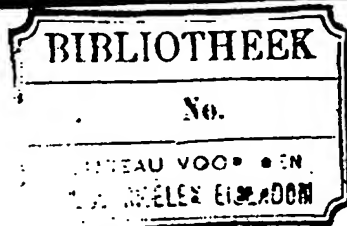
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ABSTRACT:



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PATENT



SPECIFICATION

Application Date, Nov. 10, 1917. No. 16,537/17.

Complete Left, May 8, 1918.

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PROVISIONAL SPECIFICATION.

Improvements in or connected with Artificial Limbs.

I, CHARLES ALBERT BLATCHFORD, of 90, Clapham Road, in the County of London, Manufacturer, do hereby declare the nature of this invention to be as follows:—

- This invention relates to artificial limbs.
- 5 The invention has for its primary object to provide artificial legs or fittings having artificial feet with improved, simple and inexpensive means whereby the movements of such feet are effectively cushioned and facilitated to enable the wearer to walk up and down hill easily and without discomfort, and whereby shocks are minimised and the actions of the feet are rendered quite noiseless.
- 10 Another object of the invention is to provide improved artificial feet adapted to be fitted in cases in which a Syme's or other operation leaving a long lower leg or calf stump has taken place, said feet being designed to get over the difficulties heretofore experienced when fitting a foot to such cases owing to the small distance left between the end of the stump and the ground.
- 15 According to the invention the artificial foot is hinged or pivoted on a lower leg or calf portion of the artificial limb or fitting, and said foot or calf portion is provided with one or more stops or arms adapted to engage with one or more india-rubber or like resilient buffer blocks, pads or the like and/or with one or more metal springs carried by said calf portion or foot respectively.
- 20 In a suitable manner of carrying out the invention in cases in which a short or medium lengthed stump has been left an artificial foot is hinged or pivoted on or in the lower-end or a lower leg or calf member or fitting in known or convenient manner to provide an ankle joint, said joint being preferably of the kind described in the Specification of my prior Application for Letters
- 25 Patent No. 2018/17. A recess is formed in the foot in front of the ankle joint and an india-rubber or like buffer block, pad or the like or a metal spring is fitted within said recess. An arm is fitted on the lower leg or calf member or fitting and extends forwardly in front of the ankle joint, and said arm is formed or fitted with a stop shoe at its lower free end which engages the buffer
- 30 block or the metal spring. A shaped aluminium or other cover is preferably fitted over the mouth of the recess to complete the upper contour of the foot. If desired similar or other convenient buffer devices may be fitted behind the ankle joint.
- In a suitable manner of carrying out the invention in cases in which a long
- 35 stump exists, two side bars secured to or forming part of the lower leg or calf portion or fitting have the central spindle and bearing sleeve of the ankle

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joint described in the above-mentioned prior specification mounted between their lower ends, and said sleeve is secured to the foot preferably by means of a vertical bolt and nut. A cross bar is formed on or secured to the side bars immediately over the ankle joint and carries a forwardly extending stop arm adapted to co-operate with one or more buffer blocks or metal springs 5 carried by the foot in the manner hereinbefore described. The said cross bar also carries a rearwardly directed stop arm designed to co-operate with one or more metal springs seated within a recess or recesses formed in the heel of the foot.

In both constructions, when pressure is applied to the heel and toe of the foot in the act of walking the stop shoes on the arms engage on top of the buffer blocks and/or metal springs and thus prevent shock and clicking noise experienced with some forms of artificial legs heretofore used. The buffer blocks and/or metal springs also serve to move the foot into its normal or supporting position in relation to the leg member when the foot is removed 15 from the ground.

Dated this 10th day of November, 1917.

J. S. WITHERS & SPOONER,
Chartered Patent Agents,
Staple House, 51 & 52, Chancery Lane, London, 20
Agents for the Applicant.

COMPLETE SPECIFICATION.

Improvements in or connected with Artificial Limbs.

I, CHARLES ALBERT BLATCHFORD, of 90, Clapham Road, in the County of London, Manufacturer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:— 25

This invention relates to artificial limbs.

The invention has for its primary object to provide artificial legs or fittings having jointed artificial feet with improved means whereby the movements of such feet are effectively cushioned and facilitated to enable the wearer to walk up and down hill easily and without discomfort, and whereby shocks are minimised and the actions of the feet are rendered quite noiseless.

Another object of the invention is to provide improved artificial feet adapted to be fitted in cases in which a Syme's or other operation leaving a long lower leg or calf stump has taken place, said feet being designed to get over the difficulties sometimes experienced when fitting a foot to such cases owing to the small distance left between the end of the stump and the ground. 35

It has heretofore been proposed to provide artificial limbs in which a foot member is hinged or pivoted to a lower leg or calf member, and resilient buffers or metal springs are fitted between the two limb members in front and behind the hinge or pivot and between a separate toe piece movably secured to the main portion of the foot. It has also been proposed to provide an artificial limb in which a curved downwardly and forwardly projecting member is secured to the front and exterior surface of a lower leg or calf 45 portion, said member being provided to close the space formed between said lower leg or calf portion and a foot hinged or pivoted thereto, to form part of the instep of said foot, and to bear upon a metal spring carried by the foot in front of the hinge or pivot.

The improved artificial limb or fitting provided by the present invention comprises two limb members or portions hinged or pivoted to one another, a resilient buffer or metal spring carried by one of said limb members or portions in front of the hinge or pivot, and a rod or arm which is secured to and inside the other limb member or portion, is wholly enclosed within the two limb members or portions, extends forwardly of said hinge or pivot, and is provided with a flat stop shoe at its free forward end to engage and co-operate with said buffer or spring.

The invention will now be described with reference to the accompanying drawings, in which:—

Figure 1 is a partly sectional longitudinal elevation showing one method of carrying out the invention.

Figure 2 is a transverse sectional elevation on the lines 2—2^a—2^b—2^c of Figure 1, and

Figure 3 is a view similar to Figure 1 but showing a modified manner of carrying out the invention.

In carrying out the invention in cases in which a short or medium lengthed stump has been left, an artificial foot *a*, Figures 1 and 2, is hinged or pivoted at *b* on or in the lower end of a lower leg or calf member or fitting *c* in known or convenient manner to provide an ankle joint, said joint being preferably of the kind described in the Specification of my prior Letters Patent No. 113,005. A recess *d* is formed in the foot in front of the ankle joint *b* and an india-rubber or like resilient buffer block, pad or the like *e*, or a metal spring, is fitted within said recess. An arm *f* is fitted on the lower leg or calf member or fitting *c* and extends forwardly in front of the ankle joint *b*, and said arm is formed or fitted with a stop shoe *g* at its lower free end which engages the buffer block *e* or the metal spring. A shaped leather, aluminium or other cover *h* is preferably fitted over the mouth of the recess *d* to complete the upper contour of the foot. If desired similar or other convenient buffer devices may be fitted behind the ankle joint *b*, and in the arrangement shewn a covered metal spring *i* is fitted in recesses *j* and *k* formed in the members *a* and *c* respectively.

In carrying out the invention in cases in which a long stump exists, Figure 3, two side bars *l* secured to or forming part of the lower leg or calf portion, fitting or socket *c* have the central spindle and bearing sleeve of the ankle joint described in the above-mentioned prior specification mounted between their lower ends, and said sleeve is secured to the foot *a* preferably by means of a vertical bolt *m* and nut *n* as before. A cross bar *o* is formed on or secured to the side bars *l* immediately over the ankle joint *b* and carries a forwardly extending stop arm *f* and shoe *g* adapted to co-operate with one or more buffer blocks *e* or metal springs carried by the foot *a* in the manner hereinbefore described. The said cross bar *o* preferably also carries a rearwardly directed stop arm *p* having a stop shoe designed to co-operate with one or more metal springs *i* or buffer blocks seated within a recess *j* or recesses *k* formed in the heel of the foot *a*.

In both constructions, when pressure is applied to the heel and toes of the foot in the act of walking the stop shoes on the arms engage on top of the buffer blocks and/or metal springs and thus prevent shock and clicking noise experienced with some forms of artificial legs heretofore used. The buffer blocks and/or metal springs also serve to move the foot into its normal or supporting position in relation to the leg member when the foot is removed from the ground.

A leather or other flexible flap *q* is preferably interposed between the buffer block *e* and the shoe *g* to prevent wearing of the former by the latter, and a separate toe piece *r* is hinged to the body of the foot *a* by means of a leather or other flexible strip *s* and cushioned by one or more buffer blocks or springs *t* fitted in recesses *u* and *v* formed in said toe piece and foot body respectively.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In an artificial limb or fitting having two limb members or portions hinged or pivoted to one another and a resilient buffer or metal spring carried 5 by one of said limb members or portions in front of the hinge or pivot, the provision of a rod or arm which is secured to and inside the other limb member or portion, is wholly enclosed within the two limb members or portions, extends forwardly of said hinge or pivot, and is provided with a flat stop shoe at its free forward end to engage and co-operate with said buffer or spring. 10
2. In an artificial limb or fitting as claimed above and having a second resilient buffer or metal spring arranged behind the hinge or pivot, the provision of a second rod or arm which is secured to one of the limb members or portions, extends rearwardly of said hinge or pivot, and is provided with a stop shoe at its free rear end to engage and co-operate with said buffer or spring. 15
3. In an artificial limb or fitting as claimed in Claim 2, a cross bar secured to one of the limb members or portions and above the hinge or pivot, and to which cross bar the two arms or rods are connected.
4. The improved artificial limbs constructed substantially as described with reference to Figures 1 and 2, or to Figure 3 of the accompanying drawings. 20

Dated this 8th day of May, 1918.

J. S. WITHERS & SPOONER,
Chartered Patent Agents,
Staple House, 51 & 52, Chancery Lane, London,
Agents for the Applicant. 25